

PROCEEDINGS
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BIOLOGICAL SOCIETY OF WASHINGTON

DESCRIPTIONS OF TEN NEW KANGAROO RATS.

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The collections of the Biological Survey contain ten apparently undescribed species and subspecies of kangaroo rats from California and Mexico—the latter collected by E. W. Nelson and E. A. Goldman, mainly in the course of their recent explorations on the peninsula of Lower California. Of the 10 new forms, 6 belong to the genus *Dipodomys* and 4 to the genus *Perodipus*.

In working out the ranges of the various species of the group I am indebted to Mr. E. A. Goldman for helpful assistance.

Following are descriptions of the new forms:

***Dipodomys spectabilis cratodon* subsp. nov.**

Type from Chicalote, Aguas Calientes, Mexico. No. 78,953 ♂ ad., U. S. National Museum, Biological Survey Collection. Collected July 2, 1896, by E. W. Nelson and E. A. Goldman. Orig. No. 9734.

Characters.—Similar in general to *spectabilis*, but skull larger—largest of the genus—more massive, deeper vertically, with broader rostrum and premaxillæ, narrower interparietal area, and *much broader and heavier incisors*.

Measurements.—Type specimen (♂ ad.): total length, 342; tail vertebrae, 217; hind foot, 54. Average of 9 from type locality: total length, 337; tail vertebrae, 208; hind foot, 52.5.

***Dipodomys nelsoni* sp. nov.**

Type from La Ventura, Coahuila, Mexico. No. 79,439, ♂ ad., U. S. National Museum, Biological Survey Collection. Collected Aug. 10, 1896. Nelson and Goldman. Original No. 9998.

Range.—From Santa Rosalia, Chihuahua, to Jaral and La Ventura, Coahuila, and thence to Dr. Arroyo, Nuevo Leon.

Characters.—Much smaller than *spectabilis* and very much larger than *phillipsi* group. (41 x 27 skull.) Similar to *spectabilis* in general form and massiveness of skull but much smaller.

Mastoids large; interparietal area small; mastoids actually nearly as large—relatively larger—than in *spectabilis*; zygomata not so squarely or

broadly spreading outward as *spectabilis*; maxillary arch moderate, with well developed angle (often "hooked"); color paler, grizzled buffy, most intense on flanks and rump, with vinaceous tinge; white tip of tail shorter (20 mm.) or absent altogether; distal $\frac{1}{2}$ of upper surface black and tufted; lateral white tail stripes reaching about $\frac{2}{3}$ length of tail.

Measurements.—Type specimen (σ ad.): total length, 330; tail vertebrae, 204; hind foot, 50. Average of 10 from type locality: total length, 318; tail vertebrae, 197; hind foot, 48.5.

***Dipodomys platycephalus* sp. nov.**

Type from Calmalli, Lower California, Mexico. No. 139,882, σ ad., U. S. National Museum, Biological Survey Collection. Collected Oct. 1, 1905, by E. W. Nelson and E. A. Goldman. Original No. 18,248.

Range.—Western Lower California from San Andres south to Santa Domingo and easterly over the arid desert to Calmalli.

Characters.—Similar externally to *merriami simiolus* but skull peculiar.

Color.—Ground color ochraceous buff moderately lined with dark hairs; ankle same color (not dusky).

Cranial characters.—Skull in general like that of *merriami* but *extraordinarily broad*; maxillary arches of zygomata broadly and squarely spreading* (as in *Perodipus streatori*); frontoparietal shield exceedingly broad; interparietal area broad; mastoid bullae normal.

Remarks.—So far as now known, *D. platycephalus* has only one near relative, *insularis*, from San José Island on the Gulf side of Lower California. It differs from *insularis* externally in being darker (more liberally intermixed with black hairs) and having the tail crest more sooty (instead of brownish).

The young (from San Andres) are decidedly darker than young from San José Island.

The skull differs from that of *insularis* in larger size, much broader frontoparietal shield, and decidedly larger mastoid bullae.

Measurements.—Type specimen (σ ad.): total length, 238; tail vertebrae, 145; hind foot, 38. Skull of type: occipito-nasal length, 34; breadth across mastoids, 23.5; lateral spread of maxillary arches, 21.

***Dipodomys margaritae* sp. nov.**

Type from Margarita Island, Lower California. No. 146,058, σ yg. ad., U. S. National Museum, Biological Survey Collection. Collected Dec. 1, 1905, by Nelson and Goldman. Original No. 18,711.

Range.—Margarita Island.

Characters.—Size very small (nearly as small as *exilis*); color pale pinkish buff almost ochraceous buff, moderately lined with dark hairs. Tail crest small and weak; under-stripe continuous; lateral white stripes reaching nearly to tip of vertebrae. Ground color similar to *arenivagus* but less pure—obscured by intermixture of dark hairs.

Skull.—Very small and light with slender rostrum and nasals, remarkably small bullae, rather broad frontoparietal shield and intermastoid,

* The most broadly spreading maxillary arches are in No. 139,870, from San Andres.

rather squarely spreading (but short) anterior arm of zygomata, broad and strongly angled maxillary arch, and broad frontoparietal shield.

Skull short, same size as *parvus* and most like *parvus*, from which it differs *markedly* in smaller and less inflated mastoid bullæ (especially rear section which does not project so far posteriorly), and less conspicuously in longer nasals, longer (and slightly broader) maxillary arches, which stand out more squarely. Both have rather broad frontoparietal shields and interparietals. Clearly belong to same group although color difference great.

Remarks.—*D. margaritae* requires comparison with only one known species, *parvus*, its small size (skull 33.5 x 22) alone being sufficient to distinguish it from all others except *exilis*, and its bullæ are smaller even than those of *exilis*.

Measurements.—Type specimen (♂ yg. ad.): total length, 234; tail vertebrae, 144; hind foot, 38. Average of 3 specimens from type locality: total length, 240; tail vertebrae, 149; hind foot, 38.2.

Dipodomys insularis sp. nov.

Type from San José Island, Gulf of California, off Lower California, Mexico. No. 79,053, ♀ ad., U. S. National Museum, Biological Survey Collection. Collected Aug. 6, 1895, by J. E. McLellan. Orig. No. 1457.

Characters.—Size small; color pale pinkish buff only lightly lined with dark hairs; nose and whisker patches only faintly developed.

Color.—Ground color pinkish buff with vinaceous tinge on rump and flanks, as in *margaritae*. Compared with *melanurus* from the mainland of the Cape region: color very much paler and of different tone; crested part of tail paler and less strongly crested; ears larger. Compared with *platycephalus*: general color paler; tail crest browner. The young are decidedly paler than young of *platycephalus*.

Cranial characters.—Skull small but rather broad, with very broad maxillary arches. Compared with *platycephalus* the skull is smaller; frontoparietal shield much narrower; mastoid bullæ decidedly smaller.

Measurements.—Type specimen (♀ ad.): total length, 243; tail vertebrae, 143; hind foot, 39. Average of 5 specimens from type locality: total length, 249; tail vertebrae, 146; hind foot, 39.6.

Dipodomys merriami kernensis subsp. nov.

Type from Onyx, west end of Walker Pass, Kern Co., Calif., No. 108,884, ♂ ad., U. S. National Museum, Biological Survey Collection. Collected July 25, 1901, by W. K. Fisher. Orig. No. 2106.

Characters.—Size small; color pale ochraceous buff, as in *nevadensis*, moderately lined with dark hairs; under tail stripe hardly continuous to tip but probably continuous in fresh pelage; nose and whisker spots nearly obsolete; sides of face, nearly white, reaching from sides of nose to eye and covering cheeks (under eye); thigh patch ochraceous buff to heel. Ear as in *nevadensis*.

Cranial characters.—Skull small and square, with small mastoids,

broadly and squarely spreading maxillary roots of zygomata, broad and strongly angled (almost hooked) maxillary arches, and long nasals. Compared with *nevadensis* and *nitratoides* (with which it agrees most closely): frontoparietal shield broader; skull broader across mastoids; maxillary roots of zygomata more broadly and squarely spreading; mastoids somewhat smaller (narrower) though posterior segment is fully inflated; nasals long, as in *nevadensis*—decidedly longer than in *nitratoides*.

Measurements.—Type specimen, (♂ ad.): total length, 240; tail vertebrae, 140; hind foot, 37. Skull: greatest length, 34.5; occipito-nasal length, 32.5; mastoid breadth, 22.5; maxillary breadth, 20.

***Perodipus stephensi* sp. nov.**

Type from San Jacinto Valley, Riverside County, Calif., No. $\frac{1808}{2340}$ ♂ ad., Merriam Collection. Collected Nov. 27, 1885, by Frank Stephens.

Characters.—Very distinct from all other species except *streatori* and *panamintinus* both of which it resembles in the general squarish form of the skull. Ears moderate, about as in *panamintinus*—smaller than in *agilis*.

Color.—Similar to *panamintinus* but darker.

Cranial characters.—General form of skull “squarish” as in *streatori* and *panamintinus*; frontoparietal shield broadly “squarish” (contrasted with wedge-shaped); maxillary root of zygomata broadly and squarely spreading; maxillary arch broad and strongly angled. Compared with *panamintinus* (probably its nearest relative) the skull is slightly smaller; the interparietal area and basioccipital decidedly narrower; rostrum and nasals slightly smaller and more slender; mastoid bullae slightly fuller and deeper (best seen from behind).

Compared with *streatori* (which it resembles surprisingly in general form and size) the interparietal area averages narrower; outer angle of parietal more produced, giving the cranial shield greater breadth posteriorly; mastoid bullae fuller and deeper vertically (best seen from behind); incisors weaker.

***Perodipus morroensis* sp. nov.**

Type from Morro, San Luis Obispo Co., Calif., No. $\frac{31826}{43499}$ ♀ ad., U. S. National Museum, Biological Survey Collection. Collected Nov. 11, 1891, by E. W. Nelson. Orig. No. 1464.

Characters.—A dark, highly colored form resembling *simulans* externally except that the ear is smaller and nose bar blacker. Ears dark; nose spot jet black and continuous, with black whisker patches; back darkest, with faint olivaceous tinge; front of face (eyes to nose) grizzled buffy and dusky, much paler than top of head and back; thigh patches mixed with dusky and becoming black on ankles. Similar in general to *agilis* but ears somewhat smaller; color slightly darker, particularly on sides of head below ears and on end of nose (which is black and connects with whisker patches, thus forming a black bar across front of face); thigh patch darker and passing posteriorly into sooty black.

Cranial characters.—Skull similar in general to that of *agilis* but slightly smaller; frontoparietal shield more wedge-shaped (less squarish); maxillary arch much broader and with angle strongly developed as in *streatori* (in *agilis* the angle is weak and rounded); mastoids smaller and flatter—less deep vertically; occipital part of mastoid more ridged (less swollen); incisors more slender.

Measurements.—Type specimen (♀ ad.): total length, 300, tail vertebrae, 182; hind foot, 45. Average of 5 specimens from type locality: total length, 292; tail vertebrae, 177; hind foot, 44.

***Perodipus perplexus* sp. nov.**

Type from Walker Basin, Kern Co., Calif., No. $\frac{22261}{41328}$ ♂ ad., U. S. National Museum, Biological Survey Collection. Collected July 15, 1891, by Vernon Bailey. Orig. No. 3053.

Range.—Foothills and small interior valleys of the southern Sierra and Tejon Mountains from Walker Basin to Tejon Pass.

Characters.—Ears large as in *agilis*, strikingly larger than in its neighbor *streatori*; color as in *agilis*, but sides of face from eye to whisker patch broadly whitish, leaving a comparatively narrow median band of body color reaching down from eyes to nose; dark tip of nose less marked.

Cranial characters.—Skull squarish and rather small, with broad frontals and well developed post-lachrymal angle as in *agilis*. Differs from *agilis* in slightly larger size; slightly larger incisors; maxillary arch broader at base (along fronto-maxillary suture); tympanic capsule rather short and more inflated anteriorly.

Measurements.—Type specimen (♂ ad.): total length, 320; tail vertebrae, 195; hind foot, 46. Average of 5 specimens from type locality (not fully adult): total length, 307; tail vertebrae, 183; hind foot, 44. Average of four specimens from Tejon Pass (not fully adult): total length, 307; tail vertebrae, 185; hind foot, 44.9.

***Perodipus simulans peninsularis* subsp. nov.**

Type from Santo Domingo, Lower California, Mexico. No. 139,872, ♂ yg. ad., U. S. National Museum, Biological Survey Collection. Collected Sept. 27, 1905, by Nelson and Goldman. Orig. No. 18,215.

Characters.—Similar in general to *simulans* but considerably larger, tail crest more strongly developed, pelage more silky, ground color much paler and of a different tint, and skull somewhat different.

Color.—Ground color pale buff only lightly lined with dark hairs; nose patch small and not connected with whisker-marks.

Cranial characters.—Skull like that of *simulans* but maxillary arch slightly narrower, with angle less pronounced; mastoids slightly larger and deeper; interparietal area narrower.

Measurements.—Type specimen (♂ yg. ad.): total length, 312; tail vertebrae, 203; hind foot, 45. Average of 3 from type locality (all but the type immature and slightly undersize): total length, 302; tail vertebrae, 191; hind foot, 43.5.